



Aqueous iodine chemistry: implications for the atmospheric chemistry

0.1 Rajendran Parthipan

Lucy J Carpenter

Department of Chemistry, University of York, UK.

rp139@york.ac.uk / Phone: +44(0)1904434472 .

It is established that iodine species such as molecular iodine (I_2), iodocarbons (RI_x) are released in to the Marine Boundary Layer (MBL) via biota, particularly by macro algae species. There is also evidence for micro algal production of iodocarbons in the open ocean. Since iodine actively takes part in MBL photochemistry, it is important to establish an accurate budget for iodine from the oceans, which is the only natural source of iodine to the atmosphere. In this study we present laboratory data supporting the concept that iodine species including I_2 and RI_x can be produced via abiotic mechanisms. I_2 production and partitioning to air via uptake of ozone (O_3) to seawater mimics is studied at various light conditions. Abiotic production of short-lived RI_x has been studied using Fulvic Acid (FA) and other multifunctional organic molecules as the proxy for seawater DOM. Finally we present modeling work on iodine chemistry in the aqueous phase. Iodine disproportionation has been successfully modeled and validated using 17 intermediate reactions, and further work on modeling inorganic-organic reactions will be presented.